

# Work Order ID 72709

Tuesday, August 09, 2011 10:10:07 AM

Page 1

Item ID: D206-667-103

Accept

Revision ID:

Item Name: Crosstube Fwd

Start Date: 8/9/2011 Start Qty: 1.00

Required Date: 8/31/2011 Req'd Qty: 1.00

Reference:

Approvals:

Process Plan:

Date: 11-08-9

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D206-667-143

Rev C (DEO)

DS19565

A

100

0.00



DC

Document Control

DOCUMENT CONTROL

Memo

0.00

Photocopy bluefile and create labels as per PPP D206-667-103 CHG005

Scullia

11-10-17

110

0.00



Packaging

Packaging

Pick Kit

Packaging

Memo

0.00

11-9-29

BT2709 D206-667-103

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
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|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

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Setup Start



Revision ID:

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Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_

Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_

Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

120

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-143 using CNC bender program

11-9-29

130

0.00



QC15- Crosstube Dimensional Check

QC

Memo

0.00

Quality Control

8/11/10/03

**Dart Aerospace Ltd**

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|      |      |                                  |                             |                                 |                |                           |                       |                          |

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Stop



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Date:

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Date:

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

140

0.00



Crosstubes

Crosstubes

**Memo**

0.00

1-Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill all (3) top holes.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill only the top (2) holes.

5-Drill pilot holes as per Dwg D206-667-143. Drill only the top (2) holes.

6-Drill Fwd rivet holes using drill Jig DT8787FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8787AFT as per Dwg D206-667-141.

8-C'sink holes as per Dwg D206-667-143. Allow rivet to sit below surface to compensate for paint.

9-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-143 Inside of Cuff (Do not engrave on outside of tube)

10-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-143

FT 11-10-03

JW 11-10-03

**Dart Aerospace Ltd**

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Run Start

Stop

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DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

170

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control



JW

11-10-04

Sullivan

Sullivan

**Dart Aerospace Ltd**

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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Run Start

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

180

Outsource process - NDT per QSI038 4.1

0.00



Outsource2

Memo

0.00

Outsource process - NDT

CROSSTUBES

PO 15101

R11-10-6

190

Packaging

0.00



Packaging

Memo

0.00

Packaging

Ensure copy of NDT results attached to work order.

R11-10-6 (1)

200

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

R11-10-6 (1)

**Dart Aerospace Ltd**

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|      |      |                                  |                             |                                 |                |                           |                       |                          |

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Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

| Sequence ID/<br>Work Center ID | Operation<br>Description                                      | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 210                            |   | 0.00                 |         |        |              |               |               |                  |                |
|                                | SprayPaint  |                      |         |        |              |               |               |                  |                |
| SprayPaint                     | Memo  | 0.00                 |         |        |              |               |               |                  |                |
| Spray Painting                 | 1-Prime inside and outside crosstube as per QSI 005 4.2       |                      |         |        |              |               |               |                  |                |
|                                | 2-Paint outside crosstube with White Imron as per QSI 005 4.2 |                      |         |        |              |               |               |                  |                |
|                                | PRIME:  |                      |         |        |              |               |               |                  |                |
|                                | Start Time: 8:00  |                      |         |        |              |               |               |                  |                |
|                                | Finish Time: 9:00   |                      |         |        |              |               |               |                  |                |
|                                | PAINT:  |                      |         |        |              |               |               |                  |                |
|                                | Start Time: 1:00  |                      |         |        |              |               |               |                  |                |
|                                | Finish Time: 2:00   |                      |         |        |              |               |               |                  |                |
| 220                            | QC14- Inspect Spray Paint                                     | 0.00                 |         |        |              |               |               |                  |                |
|                                |   |                      |         |        |              |               |               |                  |                |
| QC                             | Memo  | 0.00                 |         |        |              |               |               |                  |                |
| Quality Control                | Wrap in plastic bag to protect from scratches                 |                      |         |        |              |               |               |                  |                |

BT 11-10-13

11 10 14 11

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

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|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

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Run Start

QC: Date: SPC (Y/N): Date:

Stop

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|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

230

0.00



Crosstubes

Crosstubes

Memo

0.00

1-Abrade mating surfaces of support and crosstube with 400 grit sandpaper, clean the area with 4105S wash 'n' wipe

2-Install supports with Proseal 890 per DSI9565 and QSI 015

A/R Proseal 890 Batch: 118234

3- Torque bolts as per dwg

3-Install nut plates as per Dwg D206-667-143. Touch-up rivet heads with Imron paint.

25 11-10-13

25 11-10-14

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

11 10 17 (1)

**Dart Aerospace Ltd**

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Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

11/10/17

SP

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

8/11/17

270

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D206-667-103

Location: 33

PPP Rev: 2

8/11/18

**Dart Aerospace Ltd**

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|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

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Set Up/  
Run Hours

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Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

280

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/10/18

ME 11-10-18

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
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|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Picklist Print

Tuesday, August 09, 2011 10:10:13 AM

Page 1

Work Order ID: 72709

Parent Item: D206-667-103

Parent Item Name: Crosstube Fwd



Start Date: 8/9/2011

Required Date: 8/31/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:F 05.09.01 Add holes for compatibility with Bell Skid tubes KJ/JLM  
 IPP Rev:G 08-06-03 update as per DSI9415 (ECN1198) DD verified by:  
 IPP Rev: H 08.11.17 QC5 was QC6 at step 12 KJ verified by: EC  
 IPP Rev:I 08-12-15 add magnobond DD verified by:EC  
 IPP Rev J 09.01.06 ECN 08-562 EC verified by: DD  
 IPP Rev:K 09-01-19 as per DSI9439 DD verified by:EC IPP REV:L  
 11.08.05 PER ECN 11-615 DD VERF:EC

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand  | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|-----------------|-------------|--------------|---------------|----------------|--------|
| D206-667-103TRN<br>             |                        | Manufactured  | No          | 72590               |                  | 110             | Each               | 0.0000          | 1           |              |               |                |        |
| Crosstube Turning DetailL       |                        |               |             |                     |                  |                 |                    |                 |             |              |               |                |        |
| D2873-043<br>                   |                        | Manufactured  | No          |                     |                  | 230             | Each               | 16.0000         | 2           | 2            |               |                |        |
| Nut Plate Assembly              |                        |               |             |                     |                  |                 |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  |                    | <u>Loc Code</u> |             |              |               |                |        |
|                                 |                        |               |             | LG                  |                  | 16              |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 72248               |                  | 16              |                    |                 |             |              |               |                |        |
| D2873-045<br>                   |                        | Manufactured  | No          |                     |                  | 230             | Each               | 11.0000         | 2           | 2            |               |                |        |
| Nut Plate Assembly              |                        |               |             |                     |                  |                 |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  |                    | <u>Loc Code</u> |             |              |               |                |        |
|                                 |                        |               |             | LG                  |                  | 11              |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | 71983               |                  | 11              |                    |                 |             |              |               |                |        |
| D2891-1<br>                     |                        | Manufactured  | No          |                     |                  | 230             | Each               | 0.0000          | 2           | 2            |               |                |        |
| 2.25 Support                    |                        |               |             |                     |                  |                 |                    |                 |             |              |               |                |        |
|                                 |                        |               |             | <u>Location</u>     |                  | <u>Loc Qty</u>  |                    | <u>Loc Code</u> |             |              |               |                |        |
|                                 |                        |               |             | 71191               |                  |                 |                    |                 |             |              |               |                |        |

11-9-29  
 RT 11-10-13

85 11-10-13  
 RT 11-10-14

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Picklist Print

Tuesday, August 09, 2011 10:10:13 AM

Page 2

Work Order ID: 72709

Parent Item: D206-667-103

Parent Item Name: Crosstube Fwd

Start Date: 8/9/2011

Required Date: 8/31/2011

Start Qty: 1.00

Required Qty: 1.00

D3595-063-395

Manufactured

No

230

Each

109.0000

4

4



RUBBER CUSHION



RT 11-10-14

Location

Loc Qty

Loc Code

LG

108

70975

108

x4

LG055

1

63368

1

RUBBER CUSHION .63" x 3.95" (4)

MS20601-AD4W8

Purchased

No

230

Each

171.0000

14

14



RIVET



RT 11-10-13

Location

Loc Qty

Loc Code

LG

100

108521

100

LG051

71

117106

7

117381

3

117979

3

118454

58

MS21920-20

Purchased

No

230

Each

68.0000

4

4



Clamp (per MIL-DTL-8783C)



RT 11-10-14

Location

Loc Qty

Loc Code

LG050

68

116799

10

117279

16

118236

42

x1

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# Picklist Print

Tuesday, August 09, 2011 10:10:13 AM

Page 3

Work Order ID: 72709

Parent Item: D206-667-103

Parent Item Name: Crosstube Fwd

Start Date: 8/9/2011

Required Date: 8/31/2011

Start Qty: 1.00

Required Qty: 1.00



BOLT

Purchased No 250 Each 76.0000



4

| Location | Loc Qty | Loc Code |
|----------|---------|----------|
| ST339    | 76      |          |
| 116003   | 2       |          |
| 117514   | 29      |          |
| 118191   | 25      |          |
| 118451   | 20      |          |



Bolt

Purchased No 250 Each 188.0000



4

| Location | Loc Qty | Loc Code |
|----------|---------|----------|
| ST340    | 188     |          |
| 117161   | 1       |          |
| 117514   | 27      |          |
| 117872   | 60      |          |
| 118191   | 50      |          |
| 118422   | 50      |          |



Bolt

Purchased No 250 Each 187.0000



10

11/19/17

| Location | Loc Qty | Loc Code |
|----------|---------|----------|
| ST337    | 187     |          |
| 117313   | 14      |          |
| 117441   | 150     |          |
| 118422   | 23      |          |



Washer

NAS1149D0563J Purchased No

250 Each 0.0000



18

11/18/206

11/10/17

Tuesday, August 09, 2011 10:10:14 AM

Shop Packet Print

Page 3

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



# Picklist Print

Tuesday, August 09, 2011 10:10:14 AM

Page 4

Work Order ID: 72709

Parent Item: D206-667-103

Parent Item Name: Crosstube Fwd

Start Date: 8/9/2011

Required Date: 8/31/2011

Start Qty: 1.00

Required Qty: 1.00

AN970-4

Purchased

No

250

Each

269.0000

12 12



Washer

## Location

## Loc Qty

## Loc Code

ST342

257

117795

257

12

ST344

11

115936

11

ST349

1

116900

1

Purchased

No

250

Each

1,213.000

4 4

MS21042L5



Nut

## Location

## Loc Qty

## Loc Code

ST300

1213

116105

5

116548

53

117441

498

117591

71

117611

90

118179

496

Tuesday, August 09, 2011 10:10:14 AM

Shop Packet Print

Page 4

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

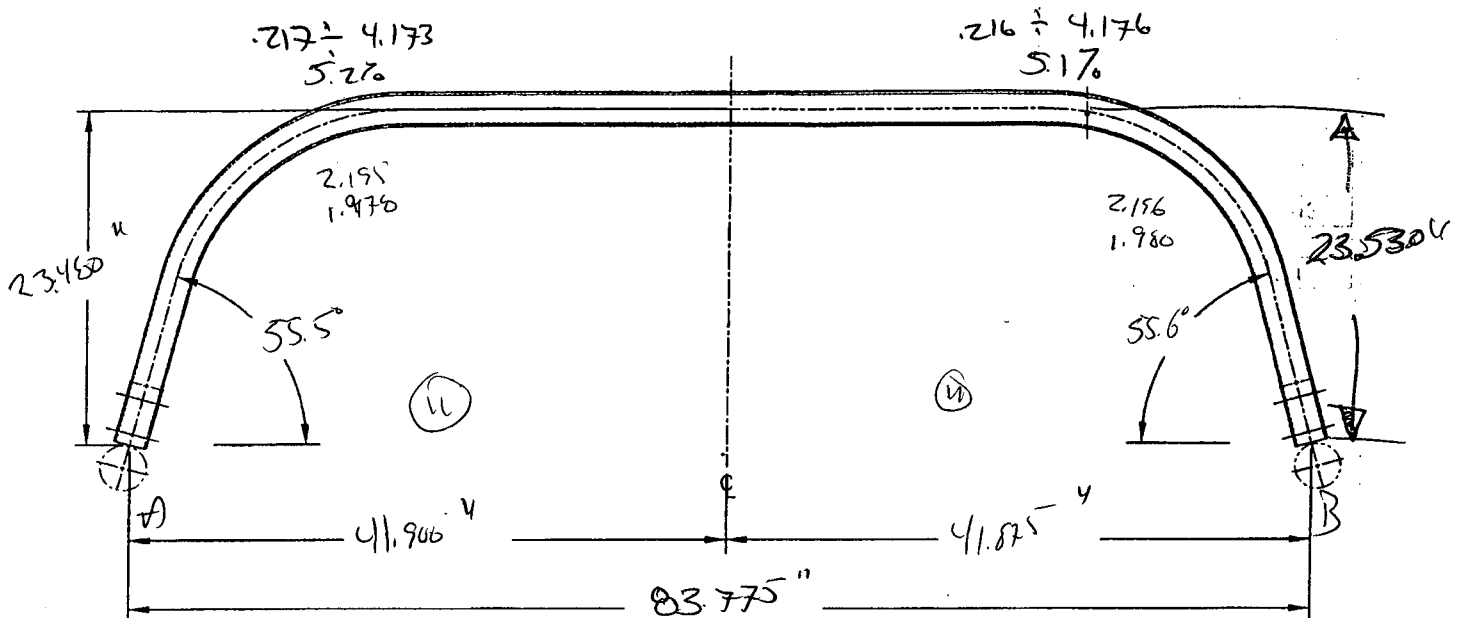
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

|   |                                  |
|---|----------------------------------|
| <b>DART AEROSPACE LTD</b>                         | <b>Work Order:</b> 72709         |
| <b>Description:</b> Crosstube High Fwd (206L)     | <b>Part Number:</b> D206-667-103 |
| <b>Inspection Dwg:</b> D206-667-143 <b>Rev:</b> C | <b>Page 1 of 1</b>               |

| Required Dimension | Min   | Max   |
|--------------------|-------|-------|
| Height             | 23.39 | 23.65 |
| 1/2 Span           | 41.79 | 42.05 |
| Angle              | 54    | 56    |
| Total Span         | 83.58 | 84.10 |



| Comments                                   |
|--|
| Since $A \approx 5.2\%$ crush: @ 11 Passes |
| Since $B \approx 5.1\%$ crush: @ 11 Passes |

|                 |          |
|-----------------|----------|
| QC15 Inspection | 8        |
| Date            | 11/10/03 |

| Rev | Date     | Change                           | Revised by | Approved |
|-----|----------|----------------------------------|------------|----------|
| A   | 07.02.06 | New Issue                        | KJ/JM      |          |
| B   | 09.06.26 | Dimensions updated per Dwg Rev C | KJ         |          |
| C   | 09.10.22 | Minimum height dimension revised | KJ         |          |

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

# DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D206-667 Rev. 3 OR LATER

REF. CANADIAN STC: SH01-5

REF. FAA STC: SR01304NY

REF. EASA STC: EASA.IM.R.S.01179

SHOP COPY

RETURN TO

ENGINEERING

UNCONTROLLED COPY

SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER

NO. 12709

## PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D206-667-101 @ CHG 004  
D206-667-103 @ CHG 005  
D206-667-107 @ CHG 002  
D206-667-201 @ CHG 004

D206-667-203 @ CHG 004  
D206-667-207 @ CHG 002  
D407-667-105 @ CHG 004

## CHANGE:

For the crosstubes listed above, section 32.4 of ICA-D206-667 is amended as follows. Use Figures 32-4 to 32-8 of ICA-D206-667 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

### 32.4 SUPPORT INSTALLATION





- 32.4.1 Locate the area on crosstube for installation of support (ref. Figures 32-4 to 32-8 of ICA-D206-667). For D206-667-101/-103/-107/-201 and D407-667-105 crosstubes, the outward face of the support tabs should be 13.08" (332mm) from the crosstube center. For D206-667-203/-207 crosstubes, the outward face of the support tabs should be 10.03" (255mm) from the crosstube center. Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D206-667.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.05" thick layer of adhesive over the entire mating surface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support.
- 32.4.6 Install the clamps opposite to crosstube support as shown in Figures 32-4 to 32-8 of ICA-D206-667. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in-lb (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D206-667, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out.
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA  
DEPARTMENT OF TRANSPORT  
AIRCRAFT CERTIFICATION  
BRANCH  
DAO # 01-O-01

APPROVED

BY:   
D. SHEPHERD (DE # 02)

DATE: 11.07.20  
CERT. NO.: SH01-5  
ISSUE NO.: 3

|            |   |  |              |
|------------|---|--|--------------|
| A          | NEW ISSUE   | CP   | 11.07.15     |
| REV.       | DESCRIPTION   | BY   | DATE         |
| DESIGN     |  | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA   |              |
| DRAWN      |  |  |              |
| CHECKED    | ASS   | DRAWING NO.  | REV. A       |
| MFG. APPR. | N/A   | DSI 9565   | SHEET 1 OF 1 |
| APPROVED   |  | TITLE  | SCALE        |
| DE APPR.   |  | SUPPORT INSTALLATION CHANGE  | NTS          |
| DATE       | 11.07.15  | COPYRIGHT © 2011 BY DART AEROSPACE LTD<br>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |              |

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

| Item | Qty<br>-143 | Part Number    | Description  |
|------|-------------|----------------|--|
| 1    | X           | D206-667-143   | CROSSTUBE ASSEMBLY (206L HIGH FWD)   |
| 2    | 1           | D6002-115      | CROSSTUBE  |
| 3    | 2           | D2873-043      | NUT PLATE  |
| 4    | 2           | D2873-045      | NUT PLATE  |
| 5    | 2           | D2891-1        | SUPPORT  |
| 6    | 4           | D3595-063-395  | RUBBER CUSHION   |
| 7    | 4           | MS21920-20     | CLAMP (OR MS21920-21)  |
| 8    | 14          | MS20601AD4W8   | RIVET (OR NAS9302B-4-8)  |
| 9    | A/R         | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023<br>ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE) |

#### GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6002-115  
FINISHED LENGTH = 104.98±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER 'D206-667-143' AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 15.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 72709

600 #1-615  
11.07.28

UNDER REVIEW

DEO ATTACHED RELEASED  
28/11/12

|            |  |   |              |
|------------|--|---|--------------|
| C          | REVISE GENERAL NOTES/PART LIST (ZN 07-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS.<br>D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4. | RF  | 08.11.06     |
| B          | ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES   | PH  | 05.07.26     |
| A          | NEW ISSUE  | CP  | 00.11.17     |
| REV.       | DESCRIPTION  | BY  | DATE         |
| DESIGN     | RF   | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA   |              |
| DRAWN      | RF   | DRAWING NO.   | REV. C       |
| CHECKED    | RF   | D206-667-143  | SHEET 1 OF 4 |
| MFG. APPR. | RF   | TITLE   | SCALE        |
| APPROVED   | RF   | CROSSTUBE ASS'Y (206L HIGH FWD)   | NTS          |
| DE APPR.   | RF   | COPYRIGHT © 2000 BY DART AEROSPACE LTD<br>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COMPILED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |              |
| DATE       | 08.11.06   |   |              |

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



8 7 6 5 4 3 2 1

12 D2891-1 SUPPORT  
2 PL

15 MS21920-20 CLAMP  
4 PL

13 D3595-063-395  
RUBBER CUSHION  
4 PL, (UNDER CLAMP)

13.08

A

B

A4-2

B7-2

D208-667-503

C

**D206-667-143**  
**ASSEMBLY DETAIL**  
(VIEW LOOKING FWD)

D2873-043  
NUT PLATE

MS20601AD4W8  
RIVET, 4 PL

D2873-045  
NUT PLATE

MS20601AD4W8  
RIVET, 3 PL

90°  
REF

C7-2 **VIEW A-A:**  
**CUFF DETAIL**  
SCALE 4X

13 15

MS21920-20 CLAMP REF

12

D2891-1 SUPPORT REF

C

D3595-063-395  
RUBBER CUSHION  
REF

D5-2 **SECTION B-B**  
SCALE 5X

FWD

6°

D2873-043  
NUT PLATE

MS20601AD4W8  
RIVET, 4 PL

D2873-045  
NUT PLATE

MS20601AD4W8  
RIVET, 3 PL

90°  
REF

C2-2 **VIEW C-C:**  
**CUFF DETAIL**  
SCALE 4X

12202

**DEO ATTACHED**

ECO H-615  
11.07.26

**UNDER REVIEW**

**RELEASED**  
06/11/12 MJD

|  |          |  |              |
|--|----------|--|--------------|
| DESIGN   | 9        | <b>DART AEROSPACE LTD</b>              |              |
| DRAWN  | RF       | HAWKESBURY, ONTARIO, CANADA            |              |
| CHECKED  | 9        | DRAWING NO.                            | REV. C       |
| MFG. APPR.   | 9        | D206-667-143                           | SHEET 2 OF 4 |
| APPROVED   | 9        | TITLE                                  | SCALE        |
| DE APPR.   | 9        | CROSSTUBE ASS'Y (206L HIGH FWD)        | NTS          |
| DATE   | 08.11.06 | COPYRIGHT © 2000 BY DART AEROSPACE LTD |              |
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8 7 6 5 4 3 2 1

Dart Aerospace Ltd

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

NOTE: Date & initial all entries



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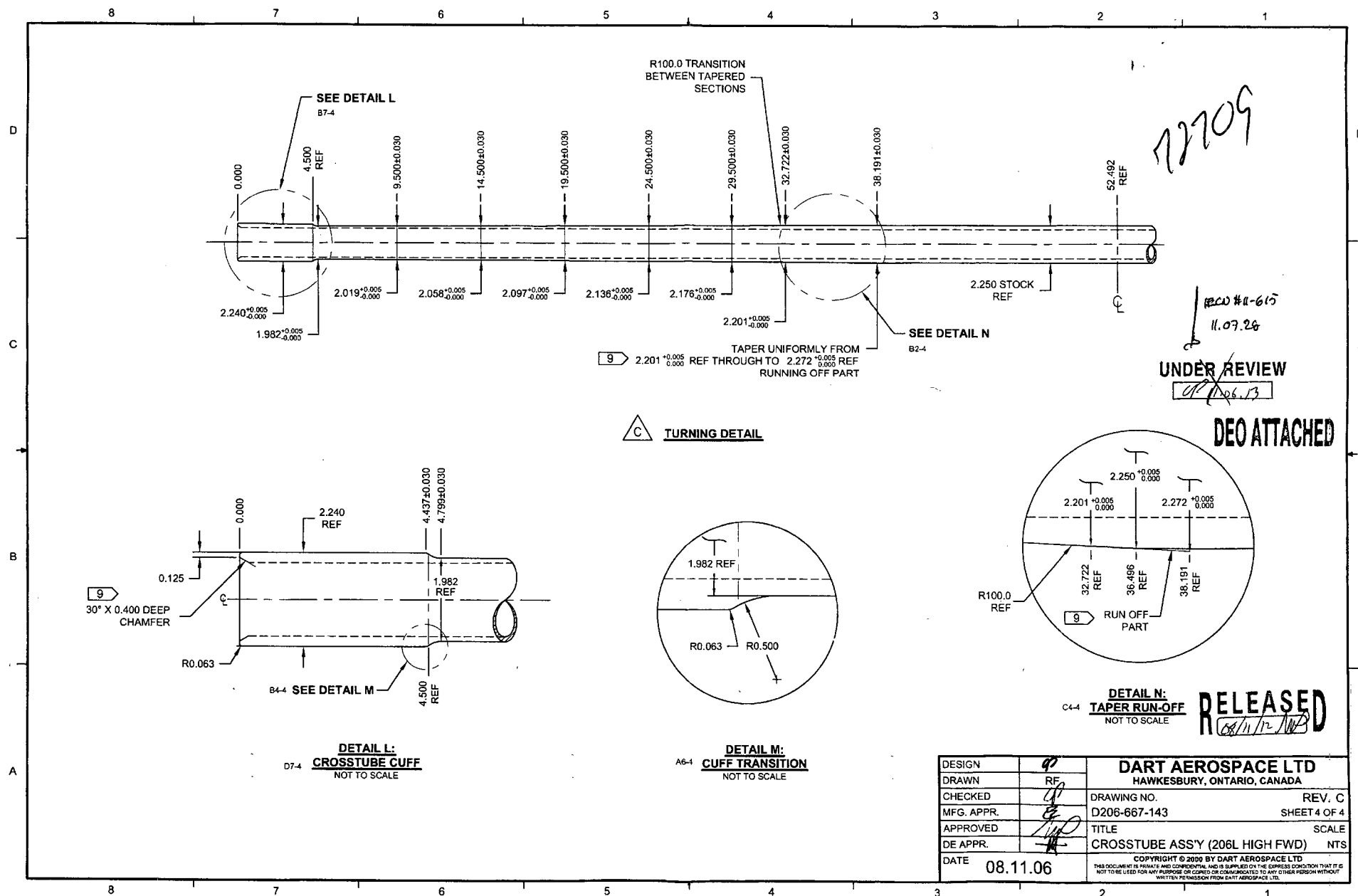
| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

|                             |  |                       |   |  |                                |                           |              |
|-----------------------------|--|-----------------------|---|--|--------------------------------|---------------------------|--------------|
| DRAWING NO.<br>D206-667-143 | TITLE<br>CROSSTUBE ASS'Y (206L HIGH FWD) | REV. C                | <b>DART AEROSPACE LTD<br/>ENGINEERING ORDER</b> |  | D.E.O. NO.<br>D206-667-143-C-1 | SHEET NO.<br>SHEET 1 OF 1 | SCALE<br>NTS |
| DRAWN <i>97</i>             | CHECKED <i>ASS</i>                       | MFG. APPR. <i>128</i> | APPROVED <i>MD</i>                              |  | DE APPR. <i>MD</i>             |                           |              |
| DATE 11.07.15               | DATE 11.07.20                            | DATE 11.07.21         | DATE 11/07/21                                   |  | DATE 11.07.21                  |                           |              |

**PURPOSE:**

REPLACE MAGNOBOND WITH PROSEAL.

**CHANGE:**

**IS:**

| Item | Qty<br>-143 | Part Number     | Description                   |
|------|-------------|-----------------|-------------------------------|
| 9    | A/R         | PROSEAL 890 B-2 | SEALANT, AMS-S-8802 CLASS B-2 |

**WAS:**

|   |     |                |   |
|---|-----|----------------|---|
| 9 | A/R | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023<br>ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,<br>TYPE II, CLASS 2 ADHESIVE) |
|---|-----|----------------|---|

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

**IS:**

12) TO INSTALL D2891-1 SUPPORT: ABRABE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

**WAS:**

12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

**RELEASED**  
2011-07-28  
*MD*

Dart Aerospace Ltd

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

NOTE: Date & initial all entries



# REFERENCE ONLY

DART AEROSPACE LTD.

IIN-D206-667

Page 17 of 19

## 5.0 PARTS LIST

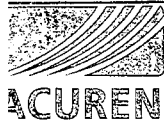
### 5.1 HIGH GEAR CROSSTUBES

| Item | Qty<br>-101 | Qty<br>-201 | Qty<br>-103 | Qty<br>-203 | Qty<br>-105 | Qty<br>-205 | Part Number   | Description  |
|------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|--|
|      | X           |             |             |             |             |             | D206-667-101  | CROSSTUBE INSTALLATION,<br>206A/B HIGH FWD           |
|      |             | X           |             |             |             |             | D206-667-201  | CROSSTUBE INSTALLATION,<br>206A/B HIGH AFT           |
|      |             |             | X           |             |             |             | D206-667-103  | CROSSTUBE INSTALLATION,<br>206L/L-1/L-3/L-4 HIGH FWD |
|      |             |             |             | X           |             |             | D206-667-203  | CROSSTUBE INSTALLATION,<br>206L/L-1/L-3/L-4 HIGH AFT |
|      |             |             |             |             | X           |             | D407-667-105  | CROSSTUBE INSTALLATION, 407 HIGH FWD                 |
|      |             |             |             |             |             | X           | D407-667-205  | CROSSTUBE INSTALLATION, 407 HIGH AFT                 |
| 1    | 1           |             |             |             |             |             | D206-667-141  | CROSSTUBE ASSEMBLY, 206A/B HIGH FWD                  |
| 2    |             | 1           |             |             |             |             | D206-667-241  | CROSSTUBE ASSEMBLY, 206A/B HIGH AFT                  |
| 3    |             |             | 1           |             |             |             | D206-667-143  | CROSSTUBE ASSEMBLY,<br>206L/L-1/L-3/L-4 HIGH FWD     |
| 4    |             |             |             | 1           |             |             | D206-667-243  | CROSSTUBE ASSEMBLY,<br>206L/L-1/L-3/L-4 HIGH AFT     |
| 5    |             |             |             |             | 1           |             | D407-667-145  | CROSSTUBE ASSEMBLY, 407 HIGH FWD                     |
| 6    |             |             |             |             |             | 1           | D407-667-245  | CROSSTUBE ASSEMBLY, 407 HIGH AFT                     |
| 10   | *2          | *2          | *2          |             | *2          |             | D2891-1       | SUPPORT  |
| 11   |             |             |             | *2          |             |             | D2892-1       | SUPPORT  |
| 12   |             |             |             |             |             | *1          | D2894-1       | SUPPORT  |
| 13   | *4          | *4          | *4          |             | *4          |             | D3595-063-395 | RUBBER CUSHION                                       |
| 14   |             |             |             | *4          |             |             | D3595-063-450 | RUBBER CUSHION                                       |
| 15   |             |             |             |             |             | *2          | D3595-075-430 | RUBBER CUSHION                                       |
| 16   | *4          | *4          | *4          |             | *4          |             | MS21920-20    | CLAMP  |
| 17   |             |             |             | *4          |             | *4          | MS21920-22    | CLAMP  |
| 18   |             |             |             |             |             | *2          | MS21920-25    | CLAMP (OR MS21920-24)                                |
| 19   | 4           | 4           | 4           |             | 4           |             | AN5-32A       | BOLT   |
| 20   |             |             |             | 4           |             | 4           | AN5-34A       | BOLT   |
| 21   | 4           | 4           | 4           | 4           | 4           | 4           | MS21042L5     | NUT (OR MS21042-5)                                   |
| 22   | 8           | 8           | 8           | 8           | 8           | 8           | NAS1149C0563J | WASHER (OR AN960JD516)                               |
| 23   |             |             |             |             |             | *2          | D3190-1       | CHAFING SHIELD                                       |
| 40   | *2          |             | *2          | *2          | *2          | *2          | D2873-043     | NUT PLATE  |
| 41   | *2          |             | *2          | *2          | *2          | *2          | D2873-045     | NUT PLATE  |
| 42   |             | 2           |             |             |             |             | D2872-043     | NUT PLATE  |
| 43   |             | 2           |             |             |             |             | D2872-045     | NUT PLATE  |
| 44   | 10          |             | 10          |             |             |             | AN5-7A        | BOLT   |
| 45   |             | 10          |             | 10          | 10          | 10          | AN5-10A       | BOLT   |
| 46   | 4           | 10          | 4           |             | 4           |             | AN5-30A       | BOLT   |
| 47   |             |             |             | 4           |             | 4           | AN5-32A       | BOLT   |
| 48   |             |             | 12          |             |             |             | AN970-4       | WASHER (OPTIONAL)                                    |
| 49   |             | 6           |             |             |             |             | MS21042L5     | NUT (OR MS21042-5)                                   |
| 50   | 10          | 12          | 10          | 10          | 10          | 10          | NAS1149C0563J | WASHER (OR AN960JD516)                               |
| 60   |             | 1           |             |             |             |             | D3039-3       | CENTER DRILL (TOOLING, NOT INSTALLED)                |

\*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/-143/-241/-243 & D407-667-145/-245  
ASSEMBLIES ABOVE

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Revision: D  
Date: 11.05.01



## LIQUID PENETRANT TEST REPORT

P- 05631

PAGE 1 OF 1

CLIENT DART AEROSPACE DATE OCT-05-2011 TIME AM ☒ PM ☐  
ATTENTION ELIDA/CHANTALE/IAN/MATT ACUREN JOB NO. 188-11-02189  
ADDRESS 1270 ABERDEEN ST. PO/VO NO. 15101  
HAWKESBURY, ON WORK LOCATION AS ADDRESS  
ACCEPTANCE STD. ASTM1417/CS1038 REV./DATE 2005  
PROJECT PT WET FLUORESCENT ON 6 "CROSSTUBES"  
ITEM(S) EXAMINED - SEE BELOW -

JOB DESCRIPTION PROCEDURE NO. L002 REV./DATE 2007 TECHNIQUE NO. LT-002 REV./DATE 2007  
PART NO. MATERIAL ALUMINUM THICKNESS N/A  
SCOPE PERFORMED A WET FLUORESCENT LIQUID PENETRANT INSPECTION ON 100% OF THE EXTERNAL SURFACE OF ITEMS MENTIONED BELOW

TEST DETAILS  
METHOD ☒ FLUORESCENT ☐ VISIBLE ☐ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED  
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 13798 ☒ OUTPUT > 1000  $\mu$ W/cm<sup>2</sup> ☐ AMBIENT < 2 fc  
PENETRANT ZL-67 MINIMUM DWELL TIME 10 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE  
PENETRANT REMOVER H<sub>2</sub>O MINIMUM DRY TIME >10 MIN. OTHER  
DEVELOPER SKD-32 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE Aug/2012  
DEVELOPER TYPE ☐ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE  
SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL  
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F  
RESULTS- ☐ METRIC ☐ IMPERIAL

1 CROSS TUBE W.O. ID 73041  
2  
3  
4  
5  
6

ITEM ID D212-664-101 FWD  
D212-664-101 FWD  
D206-667-103 FWD  
D206-667-103 FWD  
D206-667-203 AFT  
D206-667-203 AFT

NO RELEVANT INDICATION WAS DETECTED  
AS PER APPLICABLE STANDARDS

11.10.06

Scope of Services  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.  
Standard of Care  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES  
CLIENT REPRESENTATIVE Matthew Murphy PRINT Matthew Murphy SIGNATURE  
TECHNICIAN (SIGNATURE): VESDESKE SIKS  
NAME (PRINT): VESDESKE SIKS  
CGSB LEVEL 3 1<sup>ST</sup> TECHNICIAN 2 2<sup>ND</sup> TECHNICIAN  
CGSB REG. NO. 3049 CGSB REG. NO. ---  
DTR # E 44759  
REPORT REVIEWED BY:  
NAME INITIALS